

Valley, Aug. 1-4 (Scudder), Spring Lake Villa, Utah Co., Utah, Aug. 1-4 (Palmer), and Gazelle, Cal., Sept. 4 (Morse). Besides these states, it has been reported from the Yellowstone region (Bruner), Dakota (Thomas, Bruner), and Montana (Thomas).

Of the spread specimens I have seen, all from east of the continental divide, have the base of the wings as pellucid as the distal half; while in all from west of this line, the base of the wings is washed with pale citron.

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—XIII.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Synchlora glaucaria Guen. The larva has been described (as *rubivora* Riley) by Riley, Saunders and French but not in much detail.

Egg. Elliptical, strongly flattened on two sides, the flat faces concave, sunken, the edges well marked but a little rounded; side view slightly wedge shaped, the broader end truncate roundly, elevated in its center so as to be almost quite round like the narrower end, and is so except for a slight annular flattening, noticeable from side view. Surface all finely hexagonally reticulate, the reticulations not strongly raised. Pale, slightly greenish yellow, shining. Size $.6 \times .5 \times .3$ mm. Later turns pale red.

Stage I. Head round, slightly bilobed, pale brown, mottled with paler, with short, white, glandular setae; width about .3 mm. Body cylindrical, smooth, tubercles rather large, especially iv, which is cylindrical and produced with a conical tip. Setae white; on abdomen short with flattened enlarged tips, except iii (of joint 5) and iv (joints 6 to 9) which is very long and has a bulbous tip. This seta is sticky and bears, on its base principally, the fragments which adhere to the larva. Subdorsal setae of thorax and joint 12 also prolonged, but much shorter than the long lateral ones. Dark brown-black mottled with ochreous, especially on joints 12

and 13, which look lighter; traces of a dark dorsal line.

Stage II. Head rounded, slightly bilobed, of the color of the body; width .4 mm. Body as before, the setae glandular but much shorter, iv still the longest and arising from a somewhat produced base. Color dull brown, a whitish ground speckled with brown. Skin granularly roughened. Larva rather short and thick. It becomes entirely covered with fragments of the flowers it feeds on, which adhere to the sticky setae.

Stage III. Head rounded bilobed, clypeus rather high; shagreened, setae obscure; luteous whitish, speckled with brown, heaviest near the suture and on the sides of the lobes; width .8 mm. Body thick and robust, dorsum slightly flattened; tubercles angularly elevated; setae small except iv, which is large and arises from an elongated tubercle. No marked lateral projections, the slight angular projections nearly alike for all the tubercles. Gray brown, densely frosted with white granules, an obscure, double, white dorsal line, divided by brown; traces of a white lateral band on the angular elevations posteriorly, on anal plate and anal feet. Tubercles pale, setae white. All the dorsum except thorax and joints 12-13 covered with fragments of flowers which adhere to the spiny base of the short stiff seta iii. Feet pale.

Stage IV. Head rounded, scarcely bilobed, lower than prothorax, whitish, dotted with black over the sides and in a double streak on the vertex; width about 1 mm. Body short and thick, angular from the elevations, but without processes. Tubercle i and ii are high white cones with short, stiff setae but with no elevation of the body; iv is a larger cone with similar seta (i.e. iii of joint 5, iv of 6 to 9), the tubercle radiately spinose on its shaft and arising from a slight lateral elevation or swelling of the body; before and a little below it is a smaller smooth white cone bearing seta iii; v and vi remote, similar to iii; upper vii smaller, below iii subventrally; lower vii and viii are prominent on the edge of the venter. Spiracle on the dorsal aspect of the slight bulge that bears tubercle iv on joints 5 to 9. Tubercles of

thorax and joints 12-13 smaller; on 12, i is absent, ii is large and sticky like iv of 9, iii is rudimentary. Blackish gray; ground color blackish brown, densely frosted with round flattened, white granules, the prominent tubercles white and an angular white marking in a double dorsal line, along the angular lateral outline and subventrally, most distinct on joints 12 and 13. Thoracic feet pale; plates large, but colored and sculptured like the body. All covered with fragments of petals, adhering to the sticky tubercles. The spicules on the sticky tubercles are short cylindrical rods with blunt tips. The larva hibernated in this stage, full grown apparently. Bred at Washington, D C., from eggs obtained Sept. 21. Earlier broods will give the moth the same season.

Larvae fed on flowers of Aster.

NOTES ON THE NESTING OF ANTHIDIUM PAROSELAE CKLL.

I do not know how long this bee had been working before I discovered it, but to my knowledge it carried honey and pollen into its nest for two days. The nest was a small round hole bored in the hard sand. The bee brought very small loads of pollen, and would remain in its nest about 45 seconds each time; it took from three to five minutes for it to collect each load, and when it returned it would sail about its nest a short time before entering. Once during the absence of the Anthidium a specimen of *Sphcodes fortior* Ckll. entered the nest and stayed about half a minute, and then flew out very swiftly, as if it were afraid the Anthidium would return and do it some harm. I had noticed from the beginning that another bee (*Hoplospasites productus* var. *subruber* Ckll.) lingered around the nest, and would frequently go to the entrance and look in. After a while dur-

ing the absence of the Anthidium, it took the liberty of going into the nest, but it did not stay long. After the Anthidium had finished provisioning her nest, she brought some wool from the stems of plants and filled up the entrance. When the bee had gone I dug up the nest and found that it had stored its provisions in wool, the same as that with which it had closed up the nest.

Minnie Newberry.

[The above observations, made by Miss Newberry, a student of the N. M. Agricultural College, are of interest, because nothing whatever has been reported heretofore regarding the nesting of any of the insects mentioned. It is perhaps unsafe to assert that the *Sphcodes* and *Hoplospasites* are parasitic in the nest of the Anthidium, but the facts point to such a conclusion. The observations were made at Mesilla Park at the end of May, and I am responsible for the identification of the insects.—T. D. A. Cockerell.]